

**DEPARTMENT OF TRANSPORTATION****DIVISION OF ENGINEERING SERVICES**

Office of Structural Materials

Quality Assurance and Source Inspection



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Contract #: 04-0120F4Cty: SF/ALA Rte: 80 PM: 13.2/13.9File #: 69.28**WELDING INSPECTION REPORT****Resident Engineer:** Pursell, Gary**Address:** 333 Burma Road**City:** Oakland, CA 94607**Report No:** WIR-003428**Date Inspected:** 27-Jul-2008**Project Name:** SAS Superstructure**OSM Arrival Time:** 2300**Prime Contractor:** American Bridge/Fluor Enterprises, a JV**OSM Departure Time:** 730**Contractor:** Zhenhua Port Machinery Company, Ltd (ZPMC), Changxing Island **Location:** Shanghai, China**CWI Name:** Chen Xi, Xu Le feng**CWI Present:** Yes No**Inspected CWI report:** Yes No N/A**Rod Oven in Use:** Yes No N/A**Electrode to specification:** Yes No N/A**Weld Procedures Followed:** Yes No N/A**Qualified Welders:** Yes No N/A**Verified Joint Fit-up:** Yes No N/A**Approved Drawings:** Yes No N/A**Approved WPS:** Yes No N/A**Delayed / Cancelled:** Yes No N/A**Bridge No:** 34-0006**Component:** OBG, Tower**Summary of Items Observed:**

Caltrans Quality Assurance (QA) Inspector, Ken Jobes, arrived on site at the Zhenhua Port Machinery Company (ZPMC) facility at Changxing Island, in Shanghai, China, to randomly monitor welding and Quality Control (QC) functions. While on site, the QA Inspector observed and/or discovered the following:

**Tower Heavy Machinery Shop Bay 1**

The QA Inspector randomly observed the Flux Cored Arc Welding (FCAW) of three welds on Skin Plate Face C - Weld No. SSD1-SA159E/J-13, welder Dong Jia quan (I. D. No. 040345); Weld No. SSD1-SA159G/J-10, welder Sun Tao (I. D. No. 040385); and Weld No. SSD1-SA159G/J-11, welder Bai Wei ming. The Welding Procedure Specification (WPS) for all three welds was WPS-B-T-2332-TC-P5-F. Certified Welding Inspector (CWI), Xu Le Feng (CWI No. 07031411) present during this welding as were ABF QA Inspectors Yang Yi Heng and Liu Cheng.

The Caltrans QA Inspector verified the qualifications of the welders, and that the electrode classification, diameter of electrode, amperage, voltage, travel speed, and preheat/interpass temperatures were within the specified ranges on the applicable WPS.

**OBG Sub-Assembly Shop – Bay 1**

Caltrans Quality Assurance (QA) Inspector, Ken Jobes, was present to monitor activities associated with the Production Monitoring Test (PMT) of Orthotropic Box Girder (OBG) Deck Panel U-rib welds. The PMT representing Deck Panels DP496-001 and DP598-001 was monitored. After MT of the tack welds was accepted by ZPMC Level II MT Technician, Cai Xin Xin, the three ribs (six welds) were simultaneously welded to the

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simulated deck plate in the horizontal groove (2G) welding position. The Welding Procedure Specification (WPS) used was WPS-B-T-2342-U1(Urib)-4. It is a combination procedure using gas metal arc welding (GMAW) for the root pass and submerged arc welding (SAW) for the cover or fill pass. The filler metals being used were verified to be as specified on the WPS; 1.4 mm diameter, ER70S-6 (JM-56) for GMAW and 4.8 mm diameter EH14(H14) for SAW. During the test, the Caltrans QA Inspector recorded the parameters of amperage, voltage, and travel speed on the U-Ribs PMT Inspection Sheet, dated 07-28-08, for both welding processes. The name of the gantry operator and each of the six welding operators' identification numbers were also recorded on the U-Ribs PMT Inspection Sheet. ZPMC Certified Welding Inspector (CWI), Chen Xi and ABF QA Inspector Whang Zhen Hua were present during welding.

The final weld was visually examined and accepted by ZPMC CWI, Chen Xi; and ABF QA Inspector Whang Zhen Hua. All welds appeared to meet the specified visual examination acceptance criteria.. After ultrasonic examination (UT) and acceptance by ZPMC Level II UT Technician, Ma Ji Long, the Caltrans QA Inspector designated the locations for the fifteen required macro-etch specimens. All macro-etch specimens were prepared and found acceptable by ZPMC CWI, and ABF QA Inspector. The macro-etch specimens were then examined by the Caltrans QA Inspector and the depth of penetration on each measured and the results recorded on Caltrans Project 04-0120F4 SAS OBG Fabrication Macro Etch Log.

All above observations appeared to meet the requirements of the job specifications.



### Summary of Conversations:

As identified within the contents of this report.

### Comments

This report is for the purpose of determining conformance with the contract documents and is not for the purpose of making repair or fit for purpose recommendations. Should you require recommendations concerning repairs or remedial efforts please contact Ady Velasco (13816942685) China, who represents the Office of Structural Materials for your project.

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**Inspected By:** Jobes, Kenneth

Quality Assurance Inspector

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**Reviewed By:** Carreon, Albert

QA Reviewer